CLAIMS

1. A burner and gas-injection device for melting furnaces for metal material comprising at least one injector (3) for gas having a hollow body defining a longitudinal axis (20), a first internal pipe (1) and a head (2), fixed to one end of said hollow body, provided with at least one nozzle (4) that sets said first pipe in communication with the outside, the nozzle (4) having at least an outlet cross section (13) outwards of a substantially oblong shape, the device comprising at least one pipe for injection of carbon (31) in powder form set underneath the nozzle (4).

2. The device according to Claim 1, in which the nozzle (4) has a divergent end stretch (18), in which the cross sections have a progressively more elongated shape in the direction of the outlet cross section.

3. The device according to any of the preceding claims in which the nozzle (4) has a convergent-divergent shape.

4. The device according to any of the preceding claims in which the nozzle (4) is coaxial with the cylindrical body.

5. The device according to any of the preceding claims, in which the cross section of the nozzle (4), in the divergent stretch has two perpendicular axes of symmetry, the maximum width according to one of said axes, referred to as minor axis (17), remaining substantially unvaried in the passage from said restricted cross section on the outside, the maximum width according to the other axis, referred to as major axis (16) increasing progressively towards the outlet cross section.

6. The device according to any one of the preceding claims, in which the outlet cross section of the nozzle (4) is elliptical, rectangular, or rectangular with the edges rounded off.

7. The device according to any one of the preceding claims, comprising a second pipe (5), set coaxially around said first pipe, and one or more second holes (6), made in the head, said second holes putting in communication said second pipe (5) with the outside.

8. The device according to Claim 7, in which the second holes (6) are arranged

around said nozzle (4), along a circumference concentric with the axis of the nozzle (4).

9. The device according to Claim 5 and any claim from Claim 7 to Claim 8, in which said holes (6) are arranged within an angle (α), centred on said longitudinal axis and co-planar with a cross section of the nozzle (4), with respect to said minor axis, not greater than 45°, preferably not greater than 30°.

10. The device according to Claim 9, in which the second holes (6) are symmetrical with respect to said major and minor axes and define respective axes parallel to the axis of the nozzle (4).

11. The device according to one or more of the preceding claims, in which there are provided three injectors (3, 3', 3") arranged with respective axes substantially parallel and co-planar.

12. A method for supplying components to a furnace for melting metal material by means of a device according to any of the preceding claims, comprising the supply of oxygen through the nozzle (4), in which the oxygen is injected in the layer of dross, and comprising the supply of carbon through a pipe for injection of carbon, in which the carbon is injected in the layer of dross and underneath the pipe for injection of oxygen.

13. The method according to Claim 12, in which the outflow of the oxygen through the nozzle (4) is subsonic.

14. The method according to Claim 13, in which the nozzle (4) for the oxygen is set in such a way that the outlet cross section presents the maximum width in a substantially horizontal direction.

15. The method according to any one of Claims 12 to 14, in which a fuel gas is fed through the second pipes.